

DUOBINARY RECEIVER

ABSTRACT OF THE DISCLOSURE

An optical receiver adapted to process an optical duobinary signal received over a
5 transmission link in an optical communication system. In one embodiment, the receiver has an
optical-to-electrical signal converter coupled to a decoder. The decoder processes an electrical
signal generated by the converter to generate a bit sequence corresponding to the optical signal.
To generate a bit value, the decoder integrates the electrical signal using a sampling window and
compares the integration result with a decision threshold value. In one configuration, the width of
10 the sampling window and the decision threshold value are selected based on the eye diagram and
noise distribution function, respectively, corresponding to the optical signal. Advantageously,
embodiments of the present invention improve overall back-to-back (i.e., source-to-destination)
system performance, e.g., by improving dispersion tolerance and/or reducing optical power
corresponding to a selected bit error rate value.